



## Bulletin of Popular Information

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### TREES FROM AROUND THE WORLD AT THE MORTON ARBORETUM<sup>1</sup>

In accordance with the aims and ideals of the Morton Arboretum as set forth by Mr. Joy Morton, its founder, in the original trust, a major Arboretum project through the years has been the acquisition and testing of the woody plants of the world for hardiness and adaptability to the climate and growing conditions of the Chicago area.

And although much still remains to be accomplished, thirty-nine years of effort has resulted in the assembling of a rather creditable collection of trees, shrubs and vines from the temperate regions of the northern hemisphere. Many of these are already well established specimens, others poor examples thus far disappointing in their behavior, and quite a few, small sized plants still on trial. A survey of some of the most outstanding trees included should reveal some interesting and perhaps surprising facts. Before enumerating them, however, it would be well to consider some statistical data relative to local geography, climate and soil which might help explain the successes and failures we have experienced.

Located in DuPage County, Illinois (latitude 42N, longitude 88W), twenty-four miles west of downtown Chicago, the Morton Arboretum comprises a tract of 1375 acres occupying the gently rolling hills bordering the east branch of the DuPage River and its adjacent flood plain. Elevation above sea level ranges from 663 to 752 ft.

The hilly portions of the grounds are made up of ground and terminal moraine deposited some 14,000 years ago by the retreating Michigan Lobe of the Late Wisconsin Glacier. The main body of the moraine is composed of till consisting of stiff yellowish clay mixed with unsorted sand, pebbles and a few boulders. The stony matter in the

<sup>1</sup>Excluding the Western Hemisphere

till is approximately 90% limestone; the rest granite, diabase, shale, etcetera. The level portion, or outwash, was deposited by streams flowing out from under the ice sheet. Its composition consists of sand and gravel in irregular layers, sorted rather than mixed as in the till.

Four major "Soil Types" are represented in the Arboretum, upland prairie, upland timber, terrace, and late swamp and bottom-land. These may be described briefly as follows: upland prairie soils, those whose original cover was prairie grass, the partly decomposed roots of which have resulted in soils rich in organic matter. Intensive farming operations have since reduced their fertility, however; upland timber soils, those found in most of the uplands in the Arboretum, where they support a rich timber growth consisting predominantly of several species of oaks and sugar maple; terrace soils, those lands referred to as bench or second bottoms, formed during the glacial melting period; and late swamp and bottom-land soils, those of high organic composition which were found in the flood plains and very poorly drained depressions. The pH range represented varies from 5.0 to 7.0, indicating a circumneutral classification.

A continental climate prevails in the Chicago area, one noted for its warm humid summers, cold winters and its sudden and wide extremes. Temperature records kept since the late 1920's show a range from  $-30^{\circ}$  F to  $105^{\circ}$  F. Hot summer winds, predominantly of south-westerly direction, have an adverse effect upon many plants, as do cold west, northwest and northeast winter winds. Deep frost penetration, resulting from the frequent absence of snow covering during periods of severe cold, is also injurious.

Although twenty-five miles west of Lake Michigan, the Arboretum nevertheless lies within the range of its influence. This shows up in several ways; in its moderating effect upon temperatures as in winter when it often prevents excessive and prolonged cold, and in summer, when it frequently depresses high temperatures. It may also prolong the frost-free growing season, which in this area is normally 160 days, extended occasionally to 180. Precipitation-wise, the lake exerts a slightly negative total influence, somewhat decreasing the amount of rainfall in summer, increasing it in late autumn and winter. Snowfall is increased appreciably, although a regular snow cover cannot be depended upon. Total annual precipitation averages about 34 inches, occurring mostly as showers in May, June and September. There is an approximate 30% variation from year to year above and below the average, however. Very wet and very dry periods are also experienced from time to time. The average relative humidity ranges from 72 to 75% in the winter months and from 64 to 68% in the summer.

According to the new Plant Hardiness Zone Map published in 1960 by The U.S. National Arboretum, Agricultural Research Service, United States Department of Agriculture in cooperation with the American Horticultural Society, the Morton Arboretum lies in Climatic Zone 5b. This designation is based on the approximate range of average annual minimum temperatures which for this zone vary from  $-20^{\circ}$  F to  $-10^{\circ}$  F. In the previously used Zonal Map, the one in Alfred Rehder's "Manual of Cultivated Trees and Shrubs," our location was placed in Zone IV.

The tree list following, arranged alphabetically within geographical categories, includes in addition to any extension of the species' natural range, the location of the best specimen or specimens within the Arboretum grounds and a brief notation as to its size and vigor.

## EUROPE

- Acer campestre*, Hedge Maple (W. Asia) Balkan Group\*  
*Acer platanoides*, Norway Maple (Caucasus) South Farm Drive\*  
*Acer pseudoplatanus*, Sycamore Maple (W. Asia) Acer Group\*  
*Alnus glutinosa*, European Alder (Siberia) Along DuPage River throughout the Arboretum\*  
*Betula pendula* (syn. *alba*), European Birch (Asia Minor) European Group\*  
*Carpinus betulus*, European Hornbeam (Persia) *Carpinus* Group\*; European Group\*  
*Cornus mas*, Corneliancherry Dogwood (C. & S., W. Asia) *Cornus* Group\*  
*Crataegus monogyna*, Singleseed Hawthorn (N. Africa, W. Asia) Arboretum Center Grounds\*  
*Crataegus oxyacantha*, English Hawthorn (N. Africa) European Group Sm.  
*Fagus sylvatica*, European Beech (C. & S.) Arboretum Center Grounds\*  
*Fraxinus angustifolia australis*, Narrowleaf Ash variety (S. Eur., N. Africa)—  
*Fraxinus* Group  
*Fraxinus excelsior*, European Ash (Asia Minor) Balkan Group\*  
*Juglans regia* 'Carpathian,' Carpathian Persian Walnut *Juglans* Group Sm.  
*Laburnum alpinum*, Scotch Laburnum (S. Eur.) Frost Hill  
*Larix decidua*, European Larch Thornhill south of Main Drive\*  
*Malus florentina*, Florentine Crab (Italy) *Malus* Group Sm. P.  
*Malus pumila*, Common Apple (East) *Malus* Group Sm.  
*Picea abies*, Norway Spruce (N. & C.) Thornhill, Main Drive\*  
*Pinus cembra*, Swiss Stone Pine (C. Eur., N. Asia) Pinetum\*  
*Pinus nigra*, Austrian Pine (C. & S., Asia Minor) Pinetum, Balkan Group\*  
*Pinus sylvestris*, Scots Pine (Eur. to Siberia) European Group\*  
*Populus alba*, White Poplar (Eur. to W. Siberia) European Group\*  
*Prunus avium*, Mazzard Cherry (W. Asia) Balkan Group\*  
*Prunus padus*, European Birdcherry (Eur., N. Asia, Japan, Korea) Chinese Group P.  
*Quercus robur*, English Oak (N. Africa, W. Asia) Edgewood Drive\*; *Quercus* Group  
*Salix caprea*, Goat Willow (N. Asia, Asia Minor) Meadow N.W. of Director's Residence  
*Sorbus aucuparia*, European Mountain Ash (to W. Asia and Siberia) Forest Road east of Spring Road\*  
*Tilia cordata*, European Littleleaf Linden (N.) *Tilia* Group\*  
*Tilia euchlora* (*cordata* x *dasystyla*), Crimean Linden Meadow north of Meadow Lake  
*Tilia europaea* (*cordata* x *platyphyllos*), European Linden *Tilia* Group  
*Tilia juranyana*, Hungarian Linden Arboretum Center grounds near Meadow Lake\*  
*Tilia platyphyllos*, Bigleaf Linden Lake Road near old *Physocarpus* Group  
*Ulmus campestris* (syn. *carpinifolia*), Smooth-leaved Elm (W. Asia) *Ulmus* Group  
*Ulmus glabra*, Scotch or Wych Elm (W. Asia) European Group  
*Ulmus procera* English Elm (S. Eur., N. Africa)

## SOUTH EAST EUROPE, ASIA MINOR

- Abies cephalonica*, Greek Fir (Greece) Thornhill South Lawn\*  
*Abies nordmanniana*, Nordmann Fir (Caucasus, Asia Minor) Caucasus Group\*  
*Acer tataricum*, Tatarian Maple Forest Road near *Aesculus* Group\*

\*Good specimen; P. = Poor specimen; Sm. = Small specimen; C = Central; E. = East; N. = North; S. = South; W. = West



*Aesculus hippocastanum*, Horse-Chestnut Thornhill S. Lawn\*  
*Corylus colurna*, Turkish Hazel Caucasus Group\*  
*Crataegus heldreichi* (Greece) Form Garden  
*Fraxinus holotricha* (Balkans) Fraxinus Group  
*Fraxinus oxycarpa* (syn. *oxyphylla*) Fraxinus Group  
*Fraxinus syriaca*, Syrian Ash (W. and C. Asia) Fraxinus Group  
*Picea omorika*, Serbian Spruce Balkan Group\*  
*Picea orientalis*, Oriental Spruce (Caucasus, Asia Minor) Caucasus Group\*  
*Pinus heldreichi leucodermis*, Palebark Heldreich or Bosnian Pine (Balkan Pen., S. Italy) Pinetum  
*Pinus peuce*, Balkan or Macedonian Pine Pinetum Sm.  
*Platanus orientalis*, Oriental Plane Lake Marmo Bridge\*  
*Prunus cerasifera atropurpurea* (syn. *Pissardi*), Pissard Wild Myrobalan Plum Sm.  
*Salix eleagnos*, *Elaeagnus* Willow (Mts. of C. & S. Eur., Asia Minor) Sm.  
*Tilia tomentosa*, Silver Linden Thornhill Main Drive\*; Arboretum Center Grounds\*



The Arboretum's largest specimen of *Pseudolarix amabilis* (Nels.) Rehd., the attractive Golden Larch.

## CENTRAL, WEST ASIA

- Elaeagnus angustifolia*, Russian Olive (W. C. Asia) Forest Road opposite Ohio Buckeye Plot\*  
*Sorbus tianshanica*, Turkestan Mountain Ash (Turkestan) Forest Road west of Spring Road\*

## HIMALAYAS

- Pinus griffithi* (syn. *excelsa*), Himalayan Pine Pinetum\*  
*Malus baccata* jacki, Jack Crabapple (W. Himal, S. W. China) Arboretum Center Grounds\*  
*Malus sikkimensis*, Sikkim Crabapple Malus Group; Spring Road\*

## SIBERIA

- Abies nephrolepis*, Khingan Fir (S. Siberia, N. China) Sargents Glade P.  
*Alnus glutinosa*, European Alder (see Europe)  
*Crataegus dsungarica*, Mongol Hawthorn (S. E. Siberia, N. China) Siberian Group  
*Larix Gmelini* (syn. *dahurica*), Dahurian Larch (E. Siberia) Oakwood Drive  
*Malus baccata*, Siberian Crab (N. E. Asia to N. China) Malus Group\*  
*Pinus pumila*, Japanese Stone Pine (N. E. Siberia, Japan) Pinetum Sm.  
*Prunus sibirica*, Siberian Apricot (E. Siberia, Manch., N. China) Prunus Group Sm.  
*Ulmus pumila*, Siberian Elm (E. Siberia, N. China, Turkestan) Arboretum Center Grounds\*

## MANCHURIA

- Abies holophylla*, Needle or Manchurian Fir (Korea) Pinetum Sm.  
*Acer mandshuricum*, Manchurian Maple (Korea) Arboretum Center Grounds\*  
*Acer triflorum*, Triple Flowering Maple (Korea) Acer Group Sm.  
*Fraxinus mandshurica*, Manchurian Ash Fraxinus Group; Chinese Group\*  
*Juglans mandshurica*, Manchurian Walnut Siberian Group P.  
*Juniperus rigida*, Needle Juniper (Japan, Korea) Pinetum  
*Maackia amurensis*, Amur Maackia Arboretum Center Grounds  
*Malus baccata mandshurica*, Manchurian Crab (C. Japan, Amur Region, C. China) East slope Cedar Point\*  
*Picea obovata*, Siberian Spruce (N. Eur. to Kamchatka and Manch.) Sm.  
*Prunus mandshurica*, Manchurian Apricot (Korea) Prunus Group  
*Prunus padus commutata*, Harbinger European Birdcherry (Eur., N. Asia to Korea and Japan) Meadow north of Director's Residence  
*Pyrus ussuriensis*, Ussurian Pear (N. E. Asia) Japanese Island\*

## CHINA

- Acer ginnala*, Amur Maple (C. & N. China, Manch. Korea) Thornhill Main Drive\*  
*Acer griseum*, Paperbark Maple (W.) Forest Rd. west of Spring Rd.  
*Acer nikoense*, Nikko Maple (C. China, Japan) Arboretum Center Grounds  
*Ailanthus altissima*, Tree of Heaven Above Hemlock Hill\*  
*Castanea mollissima*, Chinese Chestnut (Korea) Chinese Group\*  
*Catalpa ovata*, Chinese Catalpa Chinese Group  
*Cercis chinensis*, Chinese Redbud (C.) Frost Hill

*Cornus macrophylla*, Largeleaf Dogwood (Japan) Arboretum Center Grounds\*  
*Crataegus pinnatifida*, Chinese Hawthorn (N. E. Asia) Arboretum Center Grounds; Chinese Group  
*Eucommia ulmoides*, Hardy Rubber Tree (C.) Chinese Group; Frost Hill  
*Evodia hupehensis*, Hupeh Evodia (C.) Rutaceae Group\*  
*Ginkgo biloba*, Ginkgo (S.) Arboretum Center Grounds\*  
*Gleditsia sinensis*, Chinese Honey-locust (E.) Sm.  
*Hovenia dulcis*, Japanese Raisin Tree N.E. of Yucca Planting P.  
*Juniperus chinensis*, Chinese Juniper (Mong., Japan) Pinetum; Cedar Point; Japanese Island  
*Kalopanax pictus*, Castor Aralia (Korea, Japan) East of Cedar Point\*  
*Koelreuteria paniculata*, Goldenrain Tree (N. China, Korea, Japan) Arboretum Center Grounds\*; Thornhill Grounds  
*Larix Gmelini Principis-Rupprechtii*, Prince Rupprecht Dahurian Larch (N. China, Korea) Chinese Group  
*Magnolia denudata*, Yulan Magnolia (C.) Sargents Glade\*  
*Malus hupehensis*, Tea Crab (C. & W.) Malus Group\*  
*Malus prunifolia rinki*, Chinese Pearleaf Crab Malus Group  
*Malus spectabilis albi-plena*, Double White Chinese Flowering Crabapple Malus Group Sm.  
*Malus toringoides*, Cutleaf Crab (W.) Malus Group\*  
*Malus transitoria*, Tibetan Crab (N. W.) Forest Road (west of Magnolia Group)  
*Metasequoia glyptostroboides*, Dawn Redwood (Szechuan) Frost Hill\*  
*Morus alba*, White Mulberry Morus Group  
*Morus australis* (syn. *acidosa*), Japanese Mulberry (Korea, Japan) Chinese Group  
*Paulownia tomentosa*, Royal Paulownia or Empress Tree N.E. of Yucca Planting  
*Phellodendron amurense*, Amur Cork Tree (Manchuria) Phellodendron Group\*  
*Phellodendron chinense*, Chinese Cork Tree (C. and W.) Phellodendron Group\*  
*Phellodendron sachalinense*, Sakhalin Cork Tree (W. China, Korea, N. Japan) Phellodendron Group\*  
*Picea asperata*, Dragon Spruce (W.) Pinetum; Chinese Group  
*Pinus armandi*, Armand or Chinese White Pine (C. and W. Formosa, Korea) Pinetum\*  
*Pinus bungeana*, Lacebark Pine (N. W.) Pinetum\*  
*Pinus tabulaeformis* (syn. *sinensis*), Chinese Pine (N. to W.) Chinese Group\*  
*Prunus armeniaca*, Apricot (W. Asia) Prunus Group; Arboretum Meadow  
*Prunus davidiana*, David Peach Forest Road, east of Ginkgo Planting  
*Prunus salicina*, Japanese Plum Prunus Group; Chinese Group  
*Prunus simoni*, Apricot Plum (N.) Prunus Group  
*Pseudolarix amabilis*, Golden Larch (E.) Chinese Group\*  
*Pyrus Calleryana*, Callery Pear Pyrus Group\*  
*Pyrus pyrifolia* (syn. *serotina*), Sand Pear Pyrus Group\*  
*Rhus chinensis*, Chinese Sumac (Japan) Chinese Group\*  
*Sophora japonica*, Japanese Pagoda Tree (Korea) Frost Hill  
*Syringa pekinensis*, Pekin Lilac (N.) Simmonds Road south of Gate House\*  
*Thuja orientalis*, Oriental Arborvitae (N. and W. Korea) Thuja Group; Pinetum P.  
*Ulmus parvifolia*, Chinese Elm (true) (N. and C., Korea, Japan) Ulmus Group\*  
*Xanthoceras sorbifolium*, Shingleleaf Yellowhorn (N.) South side Frost Hill P.

## JAPAN

*Abies homolepis*, Nikko Fir Pinetum\*  
*Acer carpinifolium*, Hornbeam Maple Sm.  
*Acer Miyabei*, Miyabe Maple Joy Path\*



*Acer palmatum*, Japanese Maple (Korea) Acer group\*  
*Aesculus turbinata*, Japanese Horsechestnut Aesculus Group Sm.  
*Betula Maximowicziana*, Monarch Birch Japanese Island\*  
*Broussonetia papyrifera*, Common Paper Mulberry (China) East of Yucca  
 Planting Sm. P.  
*Carpinus japonica*, Japanese Hornbeam Japanese Island\*  
*Castanea crenata*, Japanese Chestnut Mixed Forestry Plot, Forest Road Sm.  
*Cephalotaxus drupacea*, Japanese Plum Yew Frost Hill Sm.  
*Cercidiphyllum japonicum*, Katsura Tree Arboretum Center Courtyard\*  
*Chamaecyparis pisifera*, Sawara Cypress Edgewood Drive\*  
*Cornus controversa*, Giant Dogwood (China) Cornus Group; Cedar Point\*  
*Euonymus yedoensis*, Yeddo Euonymus (Korea) Japanese Island\*  
*Gleditsia japonica*, Japanese Honeylocust (China) Gleditsia Group\*  
*Larix leptolepis*, Japanese Larch Larix Group; Japanese Island  
*Magnolia kobus*, Kobus Magnolia Magnolia Group Sm.  
*Magnolia kobus borealis*, Northern Kobus Magnolia Arboretum Center Grounds\*  
*Magnolia salicifolia*, Anise Magnolia Arboretum Center Grounds\*  
*Magnolia stellata*, Star Magnolia Thornhill Grounds\*  
*Malus floribunda*, Japanese Flowering Crabapple Malus Group\*  
*Malus halliana parkmani*, Parkman Crabapple Malus Group\*  
*Malus sargentii*, Sargent Crabapple Arboretum Center Grounds\*  
*Malus sieboldi arborescens*, Tree Toringo Crabapple (Korea) Malus Group\*  
*Malus tschonoskii*, Tschonoski Crabapple Malus Group  
*Malus zumi calocarpa*, Redbud Crabapple Malus Group, along Simonds Road\*  
*Phellodendron lavalleyi*, Lavalley Cork Tree Arboretum Center Grounds\*  
*Picea koyamai*, Koyama Spruce (Korea) Edgewood Drive\*  
*Picea polita*, Tigertail Spruce Pinetum; Spruce Hill\*  
*Pinus densiflora*, Japanese Red Pine Pinetum\*  
*Pinus densiflora umbraculifera*, Japanese Umbrella Pine Pinetum\*  
*Pinus parviflora*, Japanese White Pine Pinetum\*  
*Pinus thunbergii*, Japanese Black Pine Pinetum  
*Populus sieboldii*, Siebold Aspen Populus Group; Japanese Island  
*Prunus armeniaca ansu*, Ansu Apricot (Korea) Prunus Group  
*Prunus sargentii*, Sargent Cherry (Saghal.) Plot north of Forest Road\*  
*Prunus subhirtella*, Japanese Spring or Higan Cherry Arboretum Meadow  
*Prunus yedoensis*, Yoshino Cherry Prunus Group  
*Quercus acutissima*, Sawtooth Oak (Korea, China, Himalayas) Quercus Group\*  
*Syringa amurensis japonica*, Japanese Tree Lilac Arboretum Center Grounds\*  
*Taxus cuspidata*, Japanese Yew (Korea, Manch.) Pinetum\*  
*Tilia japonica*, Japanese Linden Tilia Group  
*Torreya nucifera*, Japanese Torreya Frost Hill Sm.  
*Ulmus japonica*, Japanese Elm (N.E. Asia) Ulmus Group  
*Zelkova serrata*, Japanese Zelkova Arboretum Meadow south of Celtis Group;  
 Frost Hill

#### KOREA

*Albizia julibrissin rosea*, Hardy Mimosa Drainage Group  
*Evodia daniellii*, Korean Evodia (N. China) Rutaceae Collection\*  
*Hemiptelea davidi*, David Hemiptelea (N. China, Manch.) Ulmus Group\*  
*Maackia fauriei*, Korean Maackia Arboretum Center Grounds  
*Pinus koraiensis*, Korean Pine (Japan) Pinetum\*  
*Populus koreana*, Korean Poplar Cornus Group; Populus Group

*Prunus maackii*, Amur Chokecherry (Manch.) Prunus Group  
*Prunus meyeri*, Meyer Chokecherry Chinese Group\*  
*Prunus maximowiczii*, Miyama Cherry (Manch., Japan) Japanese Island  
*Prunus salicina koreana*, Korean Plum Sm.  
*Pyrus calleryana faurii*, Korean Callery Pear Arboretum Center Grounds\*  
*Quercus dentata*, Daimyo Oak (Japan, N. & W. China). Quercus Group; Chinese Group  
*Sorbus alnifolia*, Korean Mountain Ash (C. China, Japan) Cedar Point

E. L. Kammerer



*Juglans Sieboldiana* Maxim., the Japanese Walnut, along Lake Road north of Lake Marmo.

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